

Translation

PATENT COOPERATION TREATY

PCT/JP2003/010180



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07 OCT 2005

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

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| Applicant's or agent's file reference JYMH-9-PCT | FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) | |
| International application No. PCT/JP2003/010180 | International filing date (day/month/year) 08 August 2003 (08.08.2003) | Priority date (day/month/year) 09 August 2002 (09.08.2002) |
| International Patent Classification (IPC) or national classification and IPC H02K 21/24, 7/06, 7/12 | | |
| Applicant YAMAHA HATSUDOKI KABUSHIKI KAISHA | | |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

| | |
|---|---|
| Date of submission of the demand 08 October 2003 (08.10.2003) | Date of completion of this report 17 August 2004 (17.08.2004) |
| Name and mailing address of the IPEA/JP | Authorized officer |
| Facsimile No. | Telephone No. |

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP2003/010180

I. Basis of the report

1. With regard to the elements of the international application:*

- ☒ the international application as originally filed
- ☐ the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the claims:
pages _____, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the drawings:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

- These elements were available or furnished to this Authority in the following language _____ which is:
- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP 03/10180

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | | |
|-------------------------------|--------|-----------|-----|
| Novelty (N) | Claims | 2-10 | YES |
| | Claims | 1 | NO |
| Inventive step (IS) | Claims | 8 | YES |
| | Claims | 1-7, 9-10 | NO |
| Industrial applicability (IA) | Claims | 1-10 | YES |
| | Claims | | NO |

2. Citations and explanations

Document 1: JP 9-98558 A, 8 April 1997, paragraphs
[0061]-[0068], fig. 9

Document 2: JP 7-250465 A, 26 September 1995, paragraphs
[0016]-[0031], fig. 1-2

Document 3: JP 2002-233176 A, 16 August 2002, paragraphs
[0025]-[0027], fig. 3

Document 4: JP 9-308200 A, 28 November 1997, paragraph
[0004], fig. 1

Document 1 discloses an invention of a motor generator having a rotor shaft, a rotor connected to the rotor shaft, a stator disposed opposite the rotor, a motor for regulating the position of the rotor relative to the stator in the axial direction of the rotor shaft, and an axial direction displacement mechanism for converting the rotation of the motor into the axial direction and moving in the axial direction. Further, document 1 (paragraph [0066]) indicates that the rotor, the stator, or both may be displaced.

Document 2 discloses an invention of a stepping motor for moving an output shaft in the axial direction. Further, document 2 discloses (1) a constitution wherein the rotor of the stepping motor and the output shaft are engaged in a spiral manner so as to be movable relative to

each other, (2) a constitution wherein the output shaft is meshed with the rotor so as to be freely rotatable and rotation of the output shaft caused by the rotation of the rotor is prevented by a bearing part on a cover plate, (3) a constitution wherein rotation is prevented by a bearing part on a cover plate and the output shaft is supported so as to be movable in the axial direction, (4) a constitution wherein the lower portion of the output shaft is formed so as to have an irregularly shaped cross-section and that portion is supported by a bearing part on a cover plate, and (5) a constitution wherein the rotor and the output shaft are threaded together.

Document 3 discloses a constitution wherein balls are inserted into a groove in between a screw and a screw rotation stopper.

Document 4 discloses an invention of an electric motor vehicle using a motor generator as a drive source.

The invention described in claim 1 is disclosed in document 1, and thus, lacks novelty and does not involve an inventive step.

The invention described in claims 2 to 5, 7, and 9 does not involve an inventive step in the light of document 1 and document 2. A person skilled in the art could easily conceive of applying the constitution for a stepping motor wherein an output shaft is made to be movable in the axial direction, disclosed in document 2, to the motor generator disclosed in document 1.

The invention described in claim 6 does not involve an inventive step in the light of document 1 and documents 2 and 3. A person skilled in the art could easily conceive of applying the constitution for a stepping motor wherein an output shaft is made to be movable in the axial direction, disclosed in document 2, and the constitution wherein balls for stopping rotation are inserted into a

groove in between a movable member and a rotation-stopping member, disclosed in document 3, to the motor generator disclosed in document 1.

The invention described in claim 10 does not involve an inventive step in the light of document 1 and documents 2 and 4. A person skilled in the art could easily conceive of applying the constitution for a stepping motor wherein an output shaft is made to be movable in the axial direction, disclosed in document 2, and the constitution for an electric motor vehicle using a motor generator as a drive source, disclosed in document 4, to the motor generator disclosed in document 1.

The invention described in claim 8 is not disclosed in any of the documents cited in the international search report, nor would it be obvious to a person skilled in the art.

Meanwhile, the constitution described in claim 6 is not disclosed in JP 2002-233944 A (priority date 9 August 2002), which is one of the earlier applications used as the basis for claiming the right of priority, but is only disclosed in the other application, JP 2003-96669 A (priority date 31 March 2003), and therefore, document 3 (date of publication 16 August 2002) is cited as a document denying inventive step.